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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/046,468 | 10/19/2001 | Kelly L. Dempski | 10022/144 | 2895 |

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| EXAMINER | |
|---|---|
| ANYASO, UCHENDU O | |
| **ART UNIT** | **PAPER NUMBER** |
| 2675 | 18 |

DATE MAILED: 07/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/046,468 | DEMPSKI, KELLY L. | |
| | Examiner | Art Unit | |
| | Uchendu O Anyaso | 2675 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *09 July 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

1. **Claims 1-28** are pending in this action.

### *Claim Rejections - 35 USC ' 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. **Claims 1-13** are rejected under 35 U.S.C. 103(a) as being unpatentable over *Beller* (U.S. Patent 6,046,712) in view of *Ohshima* (U.S. 6,522,312), and further in view of *Ralston* (U.S. 6,094,625).

Regarding **independent claim 1**, Beller teaches a method of viewing data and directing the view of a wearable camera within the field of view of the operator by teaching a head mounted display system that allows an operator of a remote system to see what the user of the head mounted system is viewing wherein the head mounted communication system includes a support to be worn on a user's head and a camera system that is mounted on the support to pick up an image within at least a portion of the user's field of view (*see* column 1, lines 12-17, 48-57, 62-66).

Furthermore, Beller teaches how to select data from memory storage by teaching how the head mounted communication system 10 operates to transmit video and/or audio data to a remote assistant's terminal 13 in accordance with the flow chart depicted in FIG. 4 wherein at block 140, the microprocessor 90 determines whether there is a frame of compressed video data

in the buffer memory 86 to be transmitted, and if so, the microprocessor 90 proceeds to block 142 to retrieve the compressed data for a video frame (column 9, lines 21-28, figure 4 at 86, 140, 142).

Also, Beller teaches how to display data on the wearable display worn by the operator (column 4, lines 19-22, figure 3 at 14).

Furthermore, Beller teaches how to detect one or more visual markers by teaching how the user can realign his view to the view of the picked up image marked by the assistant by merely moving his head until the user's displayed image coincides with the real world image seen through the optics of the system (*see* column 2, lines 39-59; *see also* column 3, lines 64 through column 4, lines 5).

However, Beller does not teach how to automatically detect one or more visual markers within the image through the use of pattern recognition. On the other hand, Ohshima teaches this concept by teaching markers with circular and square patterns wherein the markers sensed by the CCD camera 240 attached to each player detects the position in the image (column 13, lines 41-53, figure 5).

Thus, it would have been obvious to a person of ordinary skill in the art to combine Beller and Ohshima because while Beller teaches a method of viewing data and directing the view of a wearable camera within the field of view of the operator, Ohshima teaches how to automatically detect one or more visual markers within the image through the use of pattern recognition by teaching markers with circular and square patterns wherein the markers sensed by the CCD camera 240 attached to each player detects the position in the image (column 13, lines 41-53, figure 5). The motivation for combining these inventions would have been to

achieve an improvement of precise detection of the head position and/or posture of an operator to which mixed reality is presented (column 1, lines 9-12).

However, Beller and Ohshima do not how to select data from a database memory storage having a predefined association with the markers. On the other hand, Ralston teaches this concept by teaching how positions and attributes of real objects are stored in a database memory carried by the operator (see Abstract), and these are associated with points that are indicated by virtual markers in order to facilitate the operation of a user (column 13, lines 16-37, figure 13).

Thus, it would have been obvious to a person of ordinary skill in the art to combine Beller and Ralston because while Beller teaches a method of viewing data and directing the view of a wearable camera within the field of view of the operator by teaching a head mounted display system that allows an operator of a remote system to see what the user of the head mounted system is viewing wherein the head mounted communication system includes a support to be worn on a user's head and a camera system that is mounted on the support to pick up an image within at least a portion of the user's field of view (*see* column 1, lines 12-17, 48-57, 62-66), Ralston teaches how a memory storage is in communication with the network containing the information associated with markers by teaching how positions and attributes of real objects are stored in a database memory carried by the operator (see Abstract), and these are associated with points that are indicated by virtual markers in order to facilitate the operation of the worker (column 13, lines 16-37, figure 13). The motivation for combining these inventions would have been to facilitate determining a current field of view of the operator through the display using the position and head orientation measurements, accessing a database containing information on a predetermined layout of a plurality of points, lines,

surfaces or other features in the design, generating an image containing representations of one or more of the features in the layout which are within the current field of view, presenting the image to the operator on the display with the representations superimposed on their predetermined positions in the field of view, and generating and presenting subsequent images on the display as the operator moves around the site and observes the design from different viewpoints (column 4, lines 13-24).

Regarding **claims 2** and **3**, in further discussion of claim 1, Beller teaches how the head mounted communication system includes a support to be worn on a user's head and a camera system that is mounted on the support to pick up an image within at least a portion of the user's field of view (*see* column 1, lines 62-66).

Regarding **claim 4**, in further discussion of claim 1, Beller teaches how the invention allows the user of the head mounted system to view video inputs received from the remote system so that they appear to be superimposed upon the real world (*see* Abstract; column 1, lines 12-17).

Regarding **claim 5**, in further discussion of claim 1, Beller teaches an input device that is actuable by the user to provide a user input command for selecting, for display on the head mounted display screen, data received from the remote system and the non-remote data sources (column 2, lines 60-67).

Regarding **claim 6**, in further discussion of claim 1, Beller teaches how the operator of the remote system can see the changing view of the user of the head mounted system in real time such that the operator can add marks or other inputs to the real time image depicted on his display so as to identify, for example, a particular object within the picked up image of the real world wherein these marks can then be transmitted to the head mounted system in real time (column 2, lines 16-38).

Regarding **claim 7**, in further discussion of claim 5, Beller teaches how his invention relates to a head mounted display system and more particularly to a head mounted communication system for providing interactive visual and/or audio communications between a user of the head mounted system and an operator of a remote system (column 1, lines 8-12).

Regarding **claim 8**, in further discussion of claim 5, Beller teaches the display 19 includes a touch responsive panel so that a stylus 23 can be used therewith to allow the assistant to mark the display by drawing circles, arrows, etc., that are useable to identify objects within the displayed image such that the touch panel and associated processor within the terminal 13 are responsive to contact by the stylus 23 so as to control the display 19 to cause a visual representation of the marks to be generated on the display as if they were drawn by the stylus 23 (column 3, lines 64 through column 4, lines 5).

Regarding **claim 9**, in further discussion of claim 5, Beller teaches a method of viewing data and directing the view of a wearable camera within the field of view of the operator by

teaching a head mounted display system that allows an operator of a remote system to see what the user of the head mounted system is viewing wherein the head mounted communication system includes a support to be worn on a user's head and a camera system that is mounted on the support to pick up an image within at least a portion of the user's field of view (*see* column 1, lines 12-17, 48-57, 62-66).

Regarding **independent claim 10**, Beller teaches a method of viewing data and directing the view of a wearable camera within the field of view of the operator by teaching a head mounted display system that allows an operator of a remote system to see what the user of the head mounted system is viewing wherein the head mounted communication system includes a support to be worn on a user's head and a camera system that is mounted on the support to pick up an image within at least a portion of the user's field of view (*see* column 1, lines 12-17, 48-57, 62-66).

Also, Beller teaches how the operator of the remote system can see the changing view of the user of the head mounted system in real time such that the operator can add marks or other inputs to the real time image depicted on his display so as to identify, for example, a particular object within the picked up image of the real world wherein these marks can then be transmitted to the head mounted system in real time (column 2, lines 16-38).

Also, Beller teaches to determine the location of the operator by means of data representing the marks input by the operator, which can be transmitted in association with a location determined with respect to the picked up image (column 2, lines 16-38).

Furthermore, Beller teaches how to detect one or more visual markers by teaching how the user can realign his view to the view of the picked up image marked by the assistant by merely moving his head until the user's displayed image coincides with the real world image seen through the optics of the system (*see* column 2, lines 39-59; *see also* column 3, lines 64 through column 4, lines 5).

However, Beller does not teach how to automatically detect one or more visual markers within the image through the use of pattern recognition. On the other hand, Ohshima teaches this concept by teaching markers with circular and square patterns wherein the markers sensed by the CCD camera 240 attached to each player detects the position in the image (column 13, lines 41-53, figure 5).

Thus, it would have been obvious to a person of ordinary skill in the art to combine Beller and Ohshima because while Beller teaches a method of viewing data and directing the view of a wearable camera within the field of view of the operator, Ohshima teaches how to automatically detect one or more visual markers within the image through the use of pattern recognition by teaching markers with circular and square patterns wherein the markers sensed by the CCD camera 240 attached to each player detects the position in the image (column 13, lines 41-53, figure 5). The motivation for combining these inventions would have been to achieve an improvement of precise detection of the head position and/or posture of an operator to which mixed reality is presented (column 1, lines 9-12).

However, Beller and Ohshima do not how to select data from a database memory storage having a predefined association with the markers. On the other hand, Ralston teaches this concept by teaching how positions and attributes of real objects are stored in a database memory

carried by the operator (see Abstract), and these are associated with points that are indicated by virtual markers in order to facilitate the operation of a user (column 13, lines 16-37, figure 13).

Thus, it would have been obvious to a person of ordinary skill in the art to combine Beller and Ralston because while Beller teaches a method of viewing data and directing the view of a wearable camera within the field of view of the operator by teaching a head mounted display system that allows an operator of a remote system to see what the user of the head mounted system is viewing wherein the head mounted communication system includes a support to be worn on a user's head and a camera system that is mounted on the support to pick up an image within at least a portion of the user's field of view (*see* column 1, lines 12-17, 48-57, 62-66), Ralston teaches how a memory storage is in communication with the network containing the information associated with markers by teaching how positions and attributes of real objects are stored in a database memory carried by the operator (see Abstract), and these are associated with points that are indicated by virtual markers in order to facilitate the operation of the worker (column 13, lines 16-37, figure 13). The motivation for combining these inventions would have been to facilitate determining a current field of view of the operator through the display using the position and head orientation measurements, accessing a database containing information on a predetermined layout of a plurality of points, lines, surfaces or other features in the design, generating an image containing representations of one or more of the features in the layout which are within the current field of view, presenting the image to the operator on the display with the representations superimposed on their predetermined positions in the field of view, and generating and presenting subsequent images

on the display as the operator moves around the site and observes the design from different viewpoints (column 4, lines 13-24).

Regarding **claims 11** and **12**, in further discussion of claim 10, Beller teaches how to monitor the change of location of the markers within the field of view of the head mounted display (column 2, lines 39-59).

Regarding **claim 13**, in further discussion of claims 10, Beller teaches how the invention allows the user of the head mounted system to view video inputs received from the remote system so that they appear to be superimposed upon the real world (*see* Abstract; column 1, lines 12-17).

Regarding **claims 21, 22, 26** and **27**, in further discussion of claim 1, Ohshima teaches markers with circular and square patterns wherein the markers sensed by the CCD camera 240 attached to each player detects the position in the image (column 13, lines 41-53, figure 5).

Regarding **claims 23** and **24**, in further discussion of claims 1 and 9, Ralston teaches this concept by teaching how positions and attributes of real objects are stored in a database memory carried by the operator (see Abstract), and these are associated with points that are indicated by virtual markers in order to facilitate the operation of a user (column 13, lines 16-37, figure 13).

Regarding **claims 25**, in further discussion of claims 1, Ralston teaches how the view for a predetermined period of time is determined according the employee preference and profile (see Abstract).

4. **Claims 14-20** are rejected under 35 U.S.C. 103(a) as being unpatentable over *Beller* (U.S. Patent 6,046,712) in view of *Ralston* (U.S. 6,094,625).

Regarding **independent claim 14**, and for **claims 19** and **20**, Beller teaches a method of viewing data and directing the view of a wearable camera within the field of view of the operator by teaching a head mounted display system that allows an operator of a remote system to see what the user of the head mounted system is viewing wherein the head mounted communication system includes a support to be worn on a user's head and a camera system that is mounted on the support to pick up an image within at least a portion of the user's field of view (*see* column 1, lines 12-17, 48-57, 62-66). It is inherent that this head mounted display comprises circuitry and logic that enables it accomplish tasks such as picking up an image within at least a portion of the user's field of view.

Furthermore, Beller teaches how to detect one or more visual markers by teaching how the user can realign his view to the view of the picked up image marked by the assistant by merely moving his head until the user's displayed image coincides with the real world image seen through the optics of the system (*see* column 2, lines 39-59; *see also* column 3, lines 64 through column 4, lines 5).

Also, Beller teaches how the operator of the remote system can see the changing view of the user of the head mounted system in real time such that the operator can add marks or other

inputs to the real time image depicted on his display so as to identify, for example, a particular object within the picked up image of the real world wherein these marks can then be transmitted to the head mounted system in real time (column 2, lines 16-38).

Also, Beller teaches how to display data on the wearable display worn by the operator (column 4, lines 19-22, figure 3 at 14).

However, Beller does not teach memory storage in communication with the network containing the information associated with the markers. On the other hand, Ralston teaches this concept by teaching how positions and attributes of real objects are stored in a database memory carried by the operator (see Abstract), and these are associated with points that are indicated by virtual markers in order to facilitate the operation of the worker (column 13, lines 16-37, figure 13).

Thus, it would have been obvious to a person of ordinary skill in the art to combine Beller and Ralston because while Beller teaches a method of viewing data and directing the view of a wearable camera within the field of view of the operator by teaching a head mounted display system that allows an operator of a remote system to see what the user of the head mounted system is viewing wherein the head mounted communication system includes a support to be worn on a user's head and a camera system that is mounted on the support to pick up an image within at least a portion of the user's field of view (*see* column 1, lines 12-17, 48-57, 62-66), Ralston teaches how a memory storage is in communication with the network containing the information associated with markers by teaching how positions and attributes of real objects are stored in a database memory carried by the operator (see Abstract), and these are associated with points that are indicated by virtual markers in order to facilitate the

operation of the worker (column 13, lines 16-37, figure 13). The motivation for combining these inventions would have been to facilitate determining a current field of view of the operator through the display using the position and head orientation measurements, accessing a database containing information on a predetermined layout of a plurality of points, lines, surfaces or other features in the design, generating an image containing representations of one or more of the features in the layout which are within the current field of view, presenting the image to the operator on the display with the representations superimposed on their predetermined positions in the field of view, and generating and presenting subsequent images on the display as the operator moves around the site and observes the design from different viewpoints (column 4, lines 13-24).

Regarding **claim 15**, in further discussion of claim 14, Beller teaches how the invention allows the user of the head mounted system to view video inputs received from the remote system so that they appear to be superimposed upon the real world (*see* Abstract; column 1, lines 12-17).

Furthermore, Beller teaches how the user would simultaneously view information on the display and objects within the field of view of the operator (column 4, lines 28-38).

Regarding **claim 16**, in further discussion of claims 10 and 15, Beller teaches how the invention allows the user of the head mounted system to view video inputs received from the remote system so that they appear to be superimposed upon the real world (*see* Abstract; column 1, lines 12-17).

Regarding **claims 17** and **18**, in further discussion of claim 14, Ralston teaches this concept by teaching how positions and attributes of real objects are stored in a database memory carried by the operator (see Abstract), and these are associated with points that are indicated by virtual markers in order to facilitate the operation of the worker (column 13, lines 16-37, figure 13).

Regarding **claim 28**, in further discussion of claim 14, Ralston teaches this concept by teaching how positions and attributes of real objects are stored in a database memory carried by the operator (see Abstract), and these are associated with points that are indicated by virtual markers in order to facilitate the operation of the worker (column 13, lines 16-37, figure 13).

### *Response to Arguments*

**5.** Applicant's amendments and arguments filed July 9, 2004 have been fully considered but they are moot in view of the new grounds for rejection.

### *Contact Information*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Uchendu O. Anyaso whose telephone number is (703) 306-5934. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Saras, can be reached at (703) 305-9720.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

**or faxed to:**`

**(703) 872-9314 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Uchendu O. Anyaso

07/26/2004

CHANH NGUYEN
PRIMARY EXAMINER